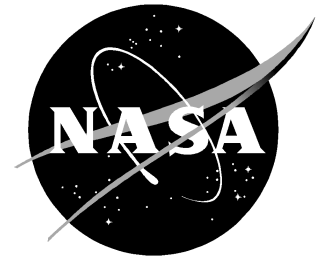


NewsRelease

National Aeronautics and
Space Administration

Langley Research Center
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For Release: November 2, 2000

RELEASE: 00-083

FROM INNER SPACE TO OUTER SPACE:

Speaker to explore atoms, one molecule at a time

Man-made products are created from atoms. The properties of those products depend greatly on how the atoms are arranged. By rearranging the atoms in coal, we can make diamonds. By rearranging the atoms in sand (and adding just a few other trace elements), we can make computer chips. If we rearrange the atoms in dirt, water and air, we can make potatoes!

Today's manufacturing methods are crude at the molecular level. It's like trying to make things out of LEGO blocks with boxing gloves on your hands. According to researcher Dr. Ralph Merkle, molecular manufacturing, or *nanotechnology*, will let us take off those boxing gloves. We'll be able to snap together the fundamental building blocks of nature easily, inexpensively and in almost any arrangement that we desire.

Merkle, principal fellow at Zyvex, Co., in Richardson, TX, will present "Nanotechnology and Space" at a colloquium at 2 p.m. Tuesday, Nov. 7, at NASA Langley's H.J.E. Reid Conference Center.

Media Briefing: A media briefing will be held at 1:15 p.m. at the H.J.E. Reid Conference Center, 14 Langley Blvd., at NASA Langley Research Center. Media who wish to attend should contact Kimberly W. Land (757) 864-9885.

Merkle will explain how nanotechnology will be essential if we want to continue the revolution in computer hardware beyond the next decade. He will also describe how we can design materials with a strength-to-weight ratio over 50 times that of steel, which indicates we could reduce the weight of spacecraft and increase payload.

Merkle will explore the theory that reduced size and weight of molecular computers and sensors can usher in a new era to space exploration. He believes that space will be a place we can visit, vacation, and live -- within the lifetimes of many of us.

In 1979, Merkle received his doctorate from Stanford University, where he co-invented public key cryptography. He joined Xerox PARC in 1988, working in computational nanotechnology until 1999. Merkle continues nanotechnology research as a principal fellow at Zyvex, the first molecular nanotechnology company. His achievements include the 1998 Feynman Prize for Nanotechnology for theory, the ACM's Kanellakis Award for Theory and Practice, and the 2000 RSA Award in Mathematics. Merkle has published many of his works and holds eight patents.

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